

Sub
B5
5

5

10

15

20

25

least one of image pickup information, photographing
light source information and object three-dimensional
form information, and the observing environment
information including at least one of illuminating
5 light form information in an observing place,
illuminating light position information in the
observing place, object direction information, object
position information and observer position information.

4. An image processing apparatus according to
10 claim 3, wherein the reproducing environment converting
unit comprises an illuminating light form converting
unit for converting the image to an image which can be
observed under a desired illuminating light form based
on the illuminating light form information in the
15 observing place.

5. An image processing apparatus according to
claim 3, wherein the reproducing environment converting
unit comprises an illuminating light position
converting unit for converting the image to an image
20 which can be observed at a desired illuminating light
position based on the illuminating light position
information in the observing place.

6. An image processing apparatus according to
claim 3, wherein the reproducing environment converting
25 unit comprises an object position converting unit for
converting the image to an image which can be observed
when the object is placed at a desired position based

on the object position information.

7. An image processing apparatus according to claim 3, wherein the reproducing environment converting unit comprises an object direction converting unit for converting the image to an image which can be observed when the object is placed in a desired direction based on the object direction information.

8. An image processing apparatus according to claim 3, wherein the reproducing environment converting unit comprises an observer position converting unit for converting the image to an image which can be observed at a desired position, based on the observer position information.

9. An image processing apparatus according to ^{claim 4} ~~any one of claims 4 to 8~~, wherein the reproducing environment converting unit comprises at least one of an image composing and interpolating unit, a specular reflecting component separating unit, and an object three-dimensional form recognizing unit, and utilizes it when calculating reproducing environment image.

10. An image processing apparatus according to claim 1 ~~or 2~~, wherein the reproducing environment converting unit comprises:

a reproducing environment-variable image data producing unit for producing reproducing environment-variable image data by using the photographing environment formation;

data transmitting means for transmitting the reproducing environment-variable image data produced by the reproducing environment-variable image data producing unit through a portable recording medium or a network; and

a reproducing environment-variable image data processing unit for converting the image in accordance with reproducing environment by using the reproducing environment information.

11. An image processing apparatus according to claim 1 ~~or 2~~, wherein the image input apparatus controls a turntable for rotating the object at a desired angle, and automatically photographs images at a plurality of angles.

12. An image processing apparatus according to claim 11, wherein the turntable has a rotation axis which can be inclined.

13. An image processing apparatus according to claim 1 ~~or 2~~, wherein the image input apparatus moves a point light source to a desired position and photographs the object illuminated with the point light source in a desired angle in accordance with a preset program.

14. An image processing apparatus according to claim 1 ~~or 2~~, wherein the image is photographed by a single camera or two cameras stereoscopically arranged, constituting the image input apparatus, the camera

being selected from the group consisting of a digital still camera, a video camera and a multi-spectrum camera.

a 5 15. An image processing apparatus according to claim 1 ~~or 2~~, wherein the image output apparatus comprises a head mounting display for displaying the processed image of the object, and one of a stereoscopic image and a holographic image is displayed in the head mounting display.

10 16. An image processing apparatus according to claim 15, wherein the head mounting display of the image output apparatus has a gyroscopic sensor functioning as part of observing environment information instructing means of the reproducing
15 environment converting unit, and changes the displayed image in accordance with movement of the head mounting display.

20 17. An image processing apparatus according to claim 3, wherein the reproducing environment converting unit comprises:

a reproducing environment-variable image data producing unit for producing reproducing environment-variable image data by using the photographing environment formation;

25 data transmitting means for transmitting the reproducing environment-variable image data produced by the reproducing environment-variable image data

gh
nv:
con
irc
ion

gh
nv:
con
irc
ion

gh
nv:
con
irc
ion

gh
nv:
con
irc
ion